

# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Missile Defense Agency										Date: February 2018		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 0603882C I Ballistic Missile Defense Midcourse Defense Segment							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	3,641.701	1,034.861	957.097	926.359	-	926.359	1,046.235	847.537	585.956	572.619	Continuing	Continuing
MD08: Ground Based Midcourse	3,384.755	981.437	906.692	872.895	-	872.895	990.175	793.532	539.759	518.995	Continuing	Continuing
MC08: Cyber Operations	21.534	12.329	18.818	23.754	-	23.754	26.372	26.575	19.463	25.454	Continuing	Continuing
MD40: Program-Wide Support	235.412	41.095	31.587	29.710	-	29.710	29.688	27.430	26.734	28.170	Continuing	Continuing
Program MDAP/MAIS Code: 362												

## Note

Decrease from FY 2018 to FY 2019 reflects completion and delivery of Ground Based Interceptors (GBIs) 48-57 and completion of the preponderance of 2- or 3-Stage Selectable Booster Software development.

FY 2017 MISSILE DEFEAT ENHANCEMENT REPROGRAMMING (FY2017-26 PA): +\$81.000M is required to address emergency warfighting requirements in support of non-recurring engineering in advance of Procurement to begin an increase in capability of the Ground-based Interceptors (GBI) by 20 from 44 to 64 (\$72.0M) and to add 20 new silos in a new missile field in Fort Greely, AK (Missile Field #4) (\$9.0M). This is a congressional special interest item.

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$129.00M is required to address emergency warfighter requirements by increasing the capacity of GBIs for the warfighter. Specific requirements include the acceleration of the Redesigned Kill Vehicle (RKV) development, the obsolescence redesign of the Configuration 2 (C2) Boost Vehicle to replace the inertial measurement unit, the All Up Round (AUR) systems engineering of the of the RKV/C2+ Ground Based Interceptor (GBI), and the mitigation of Missile Field 4 (MF-4) Obsolescence.

## A. Mission Description and Budget Item Justification

The Ground-based Midcourse Defense (GMD) element of the Ballistic Missile Defense System (BMDS) provides combatant commanders with a continuously available (24 hours a day, 365 days a year) capability to defend the Homeland against limited Intercontinental Ballistic Missile (ICBM) attacks. The GMD capability consists of Ground Based Interceptors (GBI), GMD Fire Control system (GFC), GMD Communications Network (GCN), In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) and ground Launch Support Systems (LSS). The Missile Defense Agency (MDA) will deliver 64 operationally deployed GBIs located at Fort Greely, Alaska (60 GBIs) and Vandenberg Air Force Base, California (4 GBIs). Each GBI delivers a single kill vehicle to defeat threat warheads in space during the midcourse phase of the ballistic trajectory. The GFC consists of fire control nodes in Fort Greely, Alaska and Missile Defense Integration and Operations Center (MDIOC) Colorado Springs, Colorado. IDTs are currently located in Fort Greely, Alaska: Vandenberg Air Force Base, California; Eareckson Air Station, Alaska; and Fort Drum, New York. The GMD capability leverages integration of BMDS sensors across the globe. Development objectives for GMD include: improve homeland defensive capability against an evolving threat that is increasing both in number of missiles and complexity of threat payloads, execute flight testing, modernize the GMD ground system, provide fire control and communications, develop GBI software enhancements that improve reliability, capability, and discrimination, improve GMD models and simulations, and participate with other BMDS assets in system ground tests.

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<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
Previous President's Budget	862.080	828.097	630.842	-	630.842
Current President's Budget	1,034.861	957.097	926.359	-	926.359
Total Adjustments	172.781	129.000	295.517	-	295.517
• Congressional General Reductions	-5.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	110.700	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-13.919	0.000			
• FY 2017 Request for Additional Appropriations	0.000	0.000	0.000	-	0.000
• Missile Defeat and Defense Enhancement	81.000	129.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	295.517	-	295.517

## **Change Summary Explanation**

The increase from PB18 to PB19 in FY 2019 reflects additional funding required to support fielding of 20 additional GBIs at Fort Greely, AK to include Missile Field 4 efforts, Ground Systems hardware/software upgrades and C2, booster obsolescence development and to ensure the number of fielded GBI's does not decrease through the FYDP. In addition, increased funding will address cybersecurity vulnerabilities and continue to improve discrimination capabilities.

FY 2017 MISSILE DEFEAT ENHANCEMENT REPROGRAMMING (FY2017-26 PA): +\$81.000M is required to address emergency warfighting requirements in support of non-recurring engineering in advance of Procurement to begin an increase in capability of the Ground-based Interceptors (GBI) by 20 from 44 to 64 (\$72.0M) and to add 20 new silos in a new missile field in Fort Greely, AK (Missile Field #4) (\$9.0M). This is a congressional special interest item.

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$129.00M is required to address emergency warfighter requirements by increasing the capacity of GBIs for the warfighter. Specific requirements include the acceleration of the Redesigned Kill Vehicle (RKV) development, the obsolescence redesign of the Configuration 2 (C2) Boost Vehicle to replace the inertial measurement unit, the All Up Round (AUR) systems engineering of the of the RKV/C2+ Ground Based Interceptor (GBI), and the mitigation of Missile Field 4 (MF-4) Obsolescence.

PB19 reflects approved out year Missile Defeat and Defense Enhancement (MDDE) tails.

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MD08 / Ground Based Midcourse			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD08: Ground Based Midcourse	3,384.755	981.437	906.692	872.895	-	872.895	990.175	793.532	539.759	518.995	Continuing	Continuing
Quantity of RDT&E Articles	11	-	-	-	-	-	-	-	-	-		
Note Decrease from FY 2018 to FY 2019 reflects completion and delivery of Ground Based Interceptors (GBIs) 48-57 and completion of the preponderance of 2- or 3-Stage Selectable Booster Software development.												
A. Mission Description and Budget Item Justification Ground-based Midcourse Defense (GMD) includes development and delivery of GMD Ground Systems, Ground Based Interceptors, Systems Engineering and Program Management. Development objectives for GMD include: improve homeland defensive capability against an evolving threat that is increasing both in number of missiles and complexity of threat payloads, execute Salvo Flight Test GMD (FTG-11), modernize the GMD ground system, provide fire control and communications, develop GBI software enhancements that improve reliability and discrimination, improve GMD models and simulations, and participate with other BMDS assets in system ground tests. GMD will continue the effort to develop and field improved standalone and integrated BMDS discrimination capabilities, both of which will improve the BMD System's ability to identify lethal reentry vehicles and non-lethal threat objects for enhanced interceptor performance.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2017	FY 2018	FY 2019	
Title: Ground Based Interceptor Development  Articles:  Description: The Ground Based Interceptor (GBI) Program will continue to develop improvements to enhance reliability, counter emerging threats, eliminate obsolescence and incorporate available technologies. The increase in FY 2018 begins work to perform an obsolescence redesign of the boost vehicle and support fielding 64 GBIs. Specific and/or unique accomplishments to each FY are as follows:  FY 2018 Plans: -Test and field interceptor software upgrade with improved mid-term discrimination capability and capabilities to improve EKV performance reliability for known issues in order to enhance system capability against robust threat systems -Deliver two flight test configured interceptors to support the first GBI salvo test (FTG-11) -Continue booster development to increase the capacity of GBIs for the warfighter to defeat developing threats in terms of number of threat missiles and complexity of threat payloads. -Continue work to increase GBI inventory from 44 to 64.									130.007	134.389	50.573	
									-	-	-	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>	<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
<p>-Risk reduction for additional 20 GBIs, including addition of a non-intercept target for CTV-03 in FY20 and acceleration of software builds and component qualification prior to critical design review</p> <p><b>FY 2019 Plans:</b></p> <p>-Deliver two flight test configured interceptors to support the first GBI salvo test (FTG-11)</p> <p>-Continue to develop, test and field interceptor software upgrade with improved mid-term discrimination capability and capabilities to improve EKV performance reliability for known issues in order to enhance system capability against robust threat systems</p> <p>-Initiate the conversion of a Configuration 1 boost to a Configuration 2 flight test boost vehicle to support the first Redesigned Kill Vehicle (RKV) test (CTV-03)</p> <p>Continue booster development to address inertial measurement unit obsolescence and increase the capacity of GBIs available for the warfighter from 44 to 64 to defeat developing threats</p> <p>-Complete development of 2- or 3-Stage selectable boost vehicle software that provides additional engagement battlespace to the warfighter</p> <p>-FTG 11 now scheduled in FY19</p> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b></p> <p>Decrease from FY 2018 to FY 2019 due to completion of the majority of the development work to include completion of the preponderance of 2- or 3-Stage Selectable Booster Software.</p>				
<p><b>Title:</b> Ground Based Interceptor Manufacturing</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Ground Based Interceptor (GBI) Program will continue acquisition of additional boosters to support flight testing and to ensure the number of fielded GBIs does not decrease through the FYDP. Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2018 Plans:</b></p> <p>- Deliver the final three of nine tactical CE-II Block I EKV/ C2 integrated boost vehicles with the CBAU GBI to improve warfighter capability and capacity.</p> <p>- Begins work to ensure no fewer than 44 GBIs are deployed through the FYDP</p> <p><b>FY 2019 Plans:</b></p> <p>- Complete acquisition of CE-II Block I EKV/ C2 integrated boost vehicles with the CBAU GBI to improve warfighter capability and capacity.</p>		283.654 -	125.272 -	169.542 -

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment	Project (Number/Name) MD08 / Ground Based Midcourse		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019
- Continue acquisition of additional boosters to support flight testing and to ensure the number of fielded GBIs does not decrease through the FYDP.				
FY 2018 to FY 2019 Increase/Decrease Statement: Increase from FY 2018 to FY 2019 reflects the acquisition of additional boosters.				
Title: Ground Based Interceptor Reliability		33.217	22.474	15.682
Articles:		-	-	-
Description: The Ground Based Interceptor (GBI) reliability program conducts the analysis and testing necessary to characterize the reliability and service life of the GBI Fleet. The data generated from the reliability program allows the Program Office to manage the GBI fleet, develop design improvements, develop fleet maintenance strategies, and extend interceptor service life. The data is also used by MDA engineering to develop battle simulations for the ground test program; and by the Warfighter in developing tactics, techniques, and procedures.				
Recurring work: Conduct of key KV engineering assessments including integrated sneak circuit analyses, Worst Case Circuit Analysis, and electrical/thermal derating analyses to document current performance/capability and identify potential risk areas to assess and improve overall KV reliability for the Warfighter; collection of RAM-T data and analysis of performance metrics on the Operational System in order to continuously improve the system for the Warfighter; continue the Probabilistic Risk Assessment (reliability model) development to assess the GBI design enabling improvements to overall GBI reliability for Warfighter defense of the homeland; continue SRP functional testing of naturally aged GBI subsystems and components removed from previously fielded GBIs during upgrade/modification to understand performance and aging characteristics in order to establish life limits, achieve GBI maintenance cost savings, and build Warfighter confidence in aging GBIs; and continue rocket motor propellant studies to extend the service life of limited life items in order to achieve cost savings on GBI lifecycle maintenance and further build Warfighter confidence in aging GBIs.				
Specific and/or unique accomplishments to each FY are as follows:				
FY 2018 Plans: SEE ABOVE.				
FY 2019 Plans: - SEE ABOVE.				
FY 2018 to FY 2019 Increase/Decrease Statement:				

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
Decrease from FY 2018 to FY 2019 reflects reduced requirements for GBI reliability testing.					
<b>Title:</b> Systems Engineering and Program Management			285.532	271.609	272.587
<b>Articles:</b>			-	-	-
<b>Description:</b> GMD Systems Engineering and Program Management provide essential services for the development and fielding of the GMD hardware and software and Industry Program Management operations.					
Systems Engineering includes concept definition, requirements and interfaces, system design, integration, test planning and verification efforts. Key products are development and maintenance of the technical baseline and critical engineering processes for implementation and delivery of an integrated GMD element capability.					
Recurring System Engineering work includes: Continue requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration; continue to assess current capabilities against the evolving threat; continue sustainment of core information technology data and unified communications services to accomplish research and development activities; continue Technical Direction Agent activities to provide the technical and program execution expertise required to offer independent assessment/analysis, unbiased and objective system level-oriented advice; continue modeling and simulation development and integration to assess component and system performance in support of annual technical assessments; continue modeling and simulation verification, validation, and accreditation (VV&A) to establish high confidence in Warfighter assessments; continue design, planning, and pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implement a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter; continue to use the Exoatmospheric Kill Vehicle Hardware-in-the-Loop 10V Chamber for operational analysis of emerging threats, discrimination improvements performance, pre-mission testing and post flight analysis and reconstruction in accordance with the Integrated Master Test Plan to reduce execution risks and gain confidence that capabilities performed as expected; continue requirements audit to include: functional decomposition / traceability, bottoms-up verification, sufficiency audit, and establishment of detailed performance requirement error budgets and allocations to ensure complete understanding of system capability and potential gaps; and continue rigorous independent verification and validation and system engineering analysis of GMD software to increase system performance and reliability.					
Program Management provides for prime contractor management of the GMD program. This effort includes program and business management, program administration, subcontract management, technical and testing oversight, verification of hardware and software development, quality/safety/mission assurance, integrated logistics support, and infrastructure to develop, test and sustain the GMD system and components while ensuring the program meets all cost, schedule, and performance requirements.					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019
Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2018 Plans:</b> -Complete the Enhanced Homeland Defense Systems Engineering activities under the current prime contract while simultaneously commencing a new Robust Homeland Defense Systems Engineering Prime Contract -Continue the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results and integrate GMD Sim into the new Objective Simulation Framework (OSF) -Complete design and development of Mid-term discrimination improvements techniques -Continue test planning for discrimination improvements capabilities -Continue development of discrimination improvements through Far Term -Continue to develop the definition of fire control/weapon handover improvements and create preliminary design  <b>FY 2019 Plans:</b> -Initiate integration phase of ground testing and test analysis for mid-term discrimination capabilities via Ground Test -Complete the Enhanced Homeland Defense Systems Engineering activities executing Increment 6 Systems Engineering under the current Prime Contract -Continue the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results and integrate GMD Sim into the new Objective Simulation Framework (OSF) -Complete design and development of Mid-term discrimination improvements techniques -Continue test planning for discrimination improvements capabilities -Continue development of discrimination improvements through Far Term -Continue to develop the definition of fire control/weapon handover improvements and create preliminary design that includes: - 2/3 Stage Selectable GBI Weapon - Fire Control Cyber security improvements - Initial Integration of RKV  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> N/A				
Title: Program Operations  Articles:  Description: Program Operations provides for government management of the GMD program. This effort provides: Technical, business, acquisition, configuration management and integration activities to ensure the GMD program meets cost, schedule, and performance goals and ensure program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process; internal Agency program reviews to measure program progress against		80.562 -	74.216 -	78.989 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019
the six MDA approved baselines; Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety (QSMA) in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs; and sustainment of core infrastructure and unified communications services to accomplish the GMD mission. Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2018 Plans:</b> - SEE ABOVE.  <b>FY 2019 Plans:</b> - SEE ABOVE.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Increase from FY 2018 to FY 2019 due to additional personnel required to manage and execute the increased work associated with construction of Missile Field 4, booster obsolescence development, and procurement and fielding of an additional 20 GBIs.				
<b>Title:</b> Ground Systems & Fire Control  <b>Articles:</b>  <b>Description:</b> The GMD Ground Systems enable control and operation of the GMD Element as part of the Ballistic Missile Defense System (BMDS). Ground Systems consists of the GMD Fire Control system, GMD Communications Network, In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT), Launch Site Components (LSC) (silos, silo interface vaults [SIVs]), and the Launch Support Systems (LSS) (Command and Launch Equipment (CLE), which includes Launch Support Equipment (LSE). Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2018 Plans:</b> -Complete development of 6B3 software upgrades as determined during fielding and integration into current hardware systems -Continue production and deployment of CLE/GFC re-architecture hardware suites to mitigate obsolescence and increase reliability, sustainability, and availability of GMD fire control systems -Continue development and production of the IDT technology upgrades to support On-Demand Communications capability for systems discrimination data, directed engagement and hit assessments -Complete design and development of 7B upgrades for Mid-Term discrimination improvements; upgrade interfaces to IDT to support On-Demand Communications and Warfighter enhancements -Continue GMD Communications Network (GCN) Modernization efforts to support GMD system expansion and emerging requirement, enhance/maintain Cybersecurity posture, and mitigate hardware and software obsolescence		168.465 -	278.732 -	285.522 -



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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>-Continue design and development of the version 8 software build that allows implementation of BMDS system track within GMD Ground Systems as well as Mid-Term Discrimination upgrades</li> <li>-Continue planning and implementation of space optimization renovations in the Readiness and Control (R&amp;C) building at Ft Greely, AK for best use by the Warfighter</li> <li>- Initiate system upgrades to the Readiness and Control (R&amp;C) building in Fort Greely, Alaska. The upgrades will maximize shielded protection to vital systems and provide more operational space for the Warfighters</li> <li>-Continue ground systems development to increase the capacity of GBIs for the warfighter to defeat developing threats in terms of number of threat missiles and complexity of threat payloads.</li> <li>-Continue work for 20 new silos and associated support equipment for a new missile field (Missile Field #4) to accommodate the GBIs at Fort Greely, AK.</li> <li>-Risk reduction for acceleration of software builds</li> <li>-Continue design and development of software upgrades for Shoot-Assess-Shoot supported by GMD Post-Intercept Assessment utilizing GMD sensors</li> <li>-Initiate system upgrades to the Readiness and Control (R&amp;C) building in Fort Greely, Alaska. The upgrades will provide maximize shielded protection to vital systems and provide more operational space for the Warfighters</li> </ul> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"> <li>-Complete production and deployment of CLE/GFC re-architecture hardware suites to mitigate obsolescence and increase reliability, sustainability, and availability of GMD fire control systems</li> <li>-Continue development and production of the IDT technology upgrades to support the Redesigned Kill Vehicle On-Demand Communications capability for systems discrimination data, directed engagement and hit assessments</li> <li>-Continue In-Flight Interceptor Communications System (IFICS) End-to-End Test to demonstrate communication between the RKV and the GMD Ground System</li> <li>-Complete design and development of 7B upgrades for Mid-Term discrimination improvements; upgrade interfaces to IDT to support On-Demand Communications and Warfighter enhancements</li> <li>-Continue GS 7B GMD Communications Network (GCN) Modernization efforts to support GMD system expansion and emerging requirement, enhance/maintain Cybersecurity posture, and mitigate hardware and software obsolescence</li> <li>-Continue design and development of the version 8 software build that allows implementation of BMDS system track within GMD Ground Systems as well as Mid-Term Discrimination upgrades</li> <li>-Continue system upgrades to the Readiness and Control (R&amp;C) building in Fort Greely, Alaska. The upgrades will maximize shielded protection to vital systems and provide more operational space for the Warfighters</li> <li>-Continue design and development of software upgrades for Shoot-Assess-Shoot version 9 software supported by GMD Post-Intercept Assessment utilizing GMD sensors</li> </ul>			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2017	FY 2018	FY 2019
-Continue ground systems development to increase the capacity of GBIs for the warfighter to defeat developing threats in terms of number of threat missiles and complexity of threat payloads. -Continue work for 20 new silos and associated support equipment for a new missile field (Missile Field #4) to accommodate the GBIs at Fort Greely, AK. -Continue obsolescence upgrades for GSS in-silo hardware and software to support 20 new silos and enhance cybersecurity. -Continue work to add two additional silos in Missile Field 1 at Fort Greely, AK  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Increase from FY 2018 to FY 2019 reflects additional funding required to add two additional silos in Missile Field 1 at Fort Greely, AK to ensure the number of fielded GBIs does not decrease through the FYDP.												
Accomplishments/Planned Programs Subtotals										981.437	906.692	872.895
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost	
• 0203882C: MD08: GMD O&M	129.281	137.896	143.027	-	143.027	139.319	142.269	145.188	0.000	Continuing	Continuing	
• 0603914C: Ballistic Missile Defense Test	294.441	316.193	365.681	-	365.681	349.388	320.909	320.332	327.584	Continuing	Continuing	
• 0603915C: Ballistic Missile Defense Targets	521.784	460.125	517.852	-	517.852	441.827	383.739	405.909	417.800	Continuing	Continuing	
• 0604874C: Improved Homeland Defense (HLD) Interceptors	247.362	636.430	561.220	-	561.220	485.755	502.023	604.309	635.719	Continuing	Continuing	
• 0604887C: Ballistic Missile Defense Midcourse Defense Segment Test	61.350	76.757	81.934	-	81.934	95.458	82.956	78.715	85.362	Continuing	Continuing	
• 0604894C: Multi Object Kill Vehicle	0.000	6.500	8.256	-	8.256	33.935	8.277	184.118	355.060	0.000	596.146	
Remarks												
D. Acquisition Strategy												
The GMD program will continue to follow testing, development, and evolutionary acquisition through incremental development. The Agency acquisition strategy ensures GMD components are upgraded to improve both All-Up System (AUS) performance and All-Up Round (AUR) performance in order to retain the proven GMD contribution to the Integrated BMDS. This acquisition approach reduces obsolescence risk, provides opportunities for incremental capability improvements, and allows decision makers to make informed trades between cost, schedule, and performance while exploring improved operational and technological capabilities.												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>	<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>
<p>GMD awarded a competitive Development and Sustainment Contract (DSC) on December 30, 2011. This contract continues development, fielding, test, systems engineering, integration, and configuration management; equipment manufacturing and upgrade; training, operations and sustainment of the GMD system and associated support facilities. The DSC emphasizes the application of performance-based tenets to provide timely high quality support of the core GMD system while reducing life cycle and long-term ownership costs. GMD's acquisition strategy for transition of the legacy content into the DSC provides uninterrupted field operations; development of both Ground Systems and GBI products, including manufacturing additional interceptors to support both operations and testing and the requirement to demonstrate war fighting capability through a rigorous ground and flight test program.</p> <p>In January of 2018 the MDA Director signed an Acquisition Strategy Decision Memorandum (ASDM) changing the acquisition strategy to execute the Missile Defeat and Defense Enhancement scope. The Development and Sustainment Contract (DSC) will continue with the Boeing Company to Q1 FY2024 to build the 20 GBI's and 20 Silo's with supporting test, engineering, software, and performance based logistics scope. This additional capability will provide 64 interceptors by the end of calendar year 2023 as well as maintain operation and support capabilities and support upcoming ground and flight tests. The Justification and Approval for this action was signed by the MDA Director on 2 January 2018.</p> <p><b><u>E. Performance Metrics</u></b> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MD08 / Ground Based Midcourse					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor Development - Booster Development	C/CPIF	Boeing : AL/AK/AZ/ CA/CO/TX/VA	0.000	72.000	Oct 2016	53.000		27.000		-		27.000	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Configuration 2 CBAU Booster Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	50.354	3.192	Nov 2016	1.005	Nov 2017	0.000		-		0.000	0.000	54.551	0.000
Ground Based Interceptor Development - Configuration 3 Booster Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.954	0.216		0.000		0.000		-		0.000	0.000	1.170	0.000
Ground Based Interceptor Development - EKV New & Modified Component Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	22.331	1.562	Nov 2016	0.000		0.000		-		0.000	0.000	23.893	0.000
Ground Based Interceptor Development - Flight Rotations for Ballistic Missile Defense System Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	32.309	29.259	Nov 2016	6.383	Nov 2017	10.584	Nov 2018	-		10.584	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Obsolescence work to ensure no fewer than 44 GBIs are deployed through the FYDP	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		36.999	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Operational Spares	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	17.423	5.007	Nov 2016	0.000		0.000		-		0.000	0.000	22.430	0.000
Ground Based Interceptor Development - Prior year no longer funded in the FYDP	Various	Various : Various	35.541	0.000		0.000		0.000		-		0.000	0.000	35.541	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MD08 / Ground Based Midcourse					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor Development - Software Maintenance & Updates	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	28.461	18.771	Nov 2016	37.002	Nov 2017	12.989	Nov 2018	-		12.989	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Additional Boosters	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	40.084	Nov 2016	13.000		133.817	Nov 2018	-		133.817	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Booster work to ensure no fewer than 44 GBIs are deployed through the FYDP	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		30.467	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - GBI Prime Product Support	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	191.489	44.449	Nov 2016	39.190	Nov 2017	27.934	Nov 2018	-		27.934	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Ground Based Interceptors #34-44 (CE-II)	C/CPIF	Boeing : AL/AK/AZ/ CA/CO/TX/VA	0.000	4.800	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Interceptor Manufacturing Support	MIPR	NASA MSFC& AMRDEC, HSV, AL : Draper Laboratory, MA; Vanguard, HSV, AL	11.876	4.248	Nov 2016	2.680	Nov 2017	0.629	Nov 2018	-		0.629	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Prime Ground Based Interceptors 48-58 (CE-II Block 1)	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	515.131	190.073	Nov 2016	39.935	Nov 2017	7.162	Nov 2018	-		7.162	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Prior year no longer funded in the FYDP	Various	Various : Various	115.768	0.000		0.000		0.000		-		0.000	0.000	115.768	0.000
Ground Based Interceptor Reliability - Government Reliability Program	MIPR	AMRDEC / Redstone Arsenal, AL : NSWC Crane, IN	13.389	4.580	Nov 2016	5.946	Nov 2017	4.722	Nov 2018	-		4.722	Continuing	Continuing	Continuing

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Missile Defense Agency</b>												<b>Date: February 2018</b>			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>						<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Ground Based Interceptor Reliability - Prime Currently Fielded CE-II Upgrades	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	72.456	17.454	Nov 2016	0.000		0.000		-		0.000	0.000	89.910	0.000
Ground Based Interceptor Reliability - Prime GBI Functional Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	17.025	5.053	Nov 2016	9.599	Nov 2017	1.888	Nov 2018	-		1.888	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Reliability & Systems Engineering	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	7.942	0.000		0.000		0.000		-		0.000	0.000	7.942	0.000
Ground Based Interceptor Reliability - Prime Reliability Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	25.418	6.130	Nov 2016	6.929	Nov 2017	9.072	Nov 2018	-		9.072	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Government Fort Drum IDT	MIPR	MDA/AL : /VA/NY	0.576	0.000		0.000		0.000		-		0.000	0.000	0.576	0.000
Ground Systems & Fire Control - Government Missile Field 4 (20 Silos)	MIPR	MDA : AL/VA	0.000	1.200		13.000		10.000		-		10.000	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Government Software Development	MIPR	AMRDEC : Redstone Arsenal, AL	1.131	8.849	Nov 2016	8.181	Nov 2017	6.683	Nov 2018	-		6.683	Continuing	Continuing	Continuing
Ground Systems & Fire Control - MF-1: two silos to ensure the number of fielded GBIs does not decrease through the FYDP	C/CPIF	Boeing : AL/AK/AZ/ CA/CO/VA	0.000	0.000		56.534	Nov 2017	37.000		-		37.000	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime CLE Re-Architecture	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	46.609	0.000		4.031	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	4.244	1.664	Nov 2016	1.116	Nov 2017	0.218	Nov 2018	-		0.218	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MD08 / Ground Based Midcourse					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Communications Infrastructure															
Ground Systems & Fire Control - Prime Fort Drum IDT	C/CPIF	Boeing AL : CO/NY/VA	10.043	0.020		0.000		0.000		-		0.000	0.000	10.063	0.000
Ground Systems & Fire Control - Prime Ground Systems Software Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	299.387	11.147	Nov 2016	86.521	Nov 2017	100.631	Nov 2018	-		100.631	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime MF-1 Repair and Refurbishment	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	35.639	3.286		0.000		0.000		-		0.000	0.000	38.925	0.000
Ground Systems & Fire Control - Prime Missile Field 4 (20 Silos)	C/CPIF	Boeing : AL/AK/AZ/CA/CO/VA	0.000	8.048	Nov 2016	38.000		68.000		-		68.000	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime On Demand Communications	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	0.000		16.521	Nov 2017	19.081	Nov 2018	-		19.081	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime Post-Intercept Assessment	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	0.000		4.840	Nov 2017	4.359	Nov 2018	-		4.359	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime Technology Refresh	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	54.780	134.251	Nov 2016	49.988	Nov 2017	39.550	Nov 2018	-		39.550	Continuing	Continuing	Continuing
Subtotal			1,610.276	615.343		560.867		521.319		-		521.319	Continuing	Continuing	N/A
Remarks N/A															

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Missile Defense Agency												<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>						<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>			
<b>Support (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Systems Engineering and Program Management - Cyber Security	MIPR	MDA : AL/VA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	0.000
Systems Engineering and Program Management - Government Discrimination Improvements	MIPR	FFRDC/UARC : AL	5.399	3.152	Nov 2016	7.069	Nov 2017	3.646	Nov 2018	-		3.646	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Government EKV HWIL Tests in Space Chamber	MIPR	AEDC : Tullahoma, TN	21.309	6.092	Nov 2016	7.230	Nov 2017	7.374	Nov 2018	-		7.374	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Government Modeling and Simulation	MIPR	SED and Morrow Labs : Redstone Arsenal/AL	68.187	18.460	Nov 2016	18.610	Nov 2017	20.975	Nov 2018	-		20.975	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Government Systems Engineering & Integration	MIPR	AMRDEC : HSV/AL	27.240	34.202	Nov 2016	47.929	Nov 2017	59.381	Nov 2018	-		59.381	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Information Management & Technology Ops	C/CPAF	Northrop Grumman/ Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	16.520	9.150	Nov 2016	13.210	Nov 2017	12.912	Nov 2018	-		12.912	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Model & Simulations Industry Support	C/CPAF	Northrop Grumman : AI, VA	2.539	0.000		0.000		0.000		-		0.000	0.000	2.539	0.000
Systems Engineering and Program Management - Prime Design, Readiness, Analysis and Reporting	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	14.521	Nov 2016	20.650	Nov 2017	9.668	Nov 2018	-		9.668	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Discrimination Improvements	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	36.849	20.501	Nov 2016	8.142	Nov 2017	3.557	Nov 2018	-		3.557	Continuing	Continuing	Continuing



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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Missile Defense Agency</b>												<b>Date: February 2018</b>			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>						<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>			
<b>Support (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Systems Engineering and Program Management - Prime EKV HWIL Tests in Space Chamber	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	66.915	2.063	Nov 2016	1.678	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Modeling and Simulation	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	170.840	14.243	Nov 2016	14.502	Nov 2017	13.118	Nov 2018	-		13.118	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Program Management	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	180.475	76.890	Nov 2016	53.293	Nov 2017	38.357	Nov 2018	-		38.357	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime System Engineering and Integration	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	330.516	36.800	Nov 2016	27.741	Nov 2017	48.247	Nov 2018	-		48.247	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis	MIPR	Various : AL/VA	22.953	2.914	Nov 2016	5.149	Nov 2017	1.921	Nov 2018	-		1.921	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis - CSS Support	C/CPFF	MiDAESS/TEAMS : AL	8.770	2.945	Nov 2016	2.846	Nov 2017	6.607	Nov 2018	-		6.607	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis - FFRDC / UARC	MIPR	Various : AL/VA	2.036	4.364	Nov 2016	2.543	Nov 2017	3.454	Nov 2018	-		3.454	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis - Industry Support	C/CPAF	Boeing : AL	14.793	2.476	Nov 2016	5.810	Nov 2017	6.011	Nov 2018	-		6.011	Continuing	Continuing	Continuing
Systems Engineering and Program Management	MIPR	Various : AL, VA	6.897	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Missile Defense Agency</b>												<b>Date: February 2018</b>			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>						<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>			
<b>Support (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
- Systems Engineering & Analysis – Threat Analysis / FFRDC / UARC															
Systems Engineering and Program Management - Systems Engineering and Program Management - Discrimination Engineering & Analysis	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	9.043	Nov 2016	9.980	Nov 2017	12.737	Nov 2018	-		12.737	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering and Program Management Model & Simulations Support	Allot	MDA : AL/VA	31.449	8.647	Oct 2016	9.507	Oct 2017	8.430	Oct 2018	-		8.430	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Technical Direction Agent	MIPR	AL/CA/GA/MA : MD/ NM/UT/VA	20.437	19.069	Oct 2016	15.720	Nov 2017	16.192	Nov 2018	-		16.192	Continuing	Continuing	Continuing
Program Operations - Contract Support Services	C/CPFF	Various : AL/AK/CA/ CO/VA	405.911	38.537	Oct 2016	28.895	Oct 2017	30.352	Oct 2018	-		30.352	Continuing	Continuing	Continuing
Program Operations - FFRDC Support	MIPR	MIT/LL : AL/VA/CO	44.694	4.462	Oct 2016	4.674	Oct 2017	4.538	Oct 2018	-		4.538	Continuing	Continuing	Continuing
Program Operations - Government Civilian Salaries	MIPR	MDA : AL/VA	236.264	29.750	Oct 2016	31.822	Oct 2017	33.939	Oct 2018	-		33.939	Continuing	Continuing	Continuing
Program Operations - Information Technology Services	MIPR	MDA : AL/CA/VA/ CO/AK	3.447	0.137	Nov 2016	1.256	Nov 2017	0.572	Nov 2018	-		0.572	Continuing	Continuing	Continuing
Program Operations - Other Govt Agencies	MIPR	Various : AL/VA/FL/ CO	41.782	6.083	Oct 2016	5.869	Oct 2017	7.975	Oct 2018	-		7.975	Continuing	Continuing	Continuing
Program Operations - Safety and Quality	MIPR	MDA : AL/AK/CA/VA	0.567	0.016	Nov 2016	0.016	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - Travel	MIPR	MDA : AL/VA	7.690	1.577	Oct 2016	1.684	Oct 2017	1.613	Oct 2018	-		1.613	Continuing	Continuing	Continuing

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Missile Defense Agency													<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>					<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>					

  

<b>Support (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			1,774.479	366.094		345.825		351.576		-		351.576	Continuing	Continuing	N/A

**Remarks**  
N/A

  

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**Remarks**  
N/A

  

<b>Management Services (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**Remarks**  
N/A

  

			<b>Prior Years</b>	<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			3,384.755	981.437		906.692		872.895		-		872.895	Continuing	Continuing	N/A

**Remarks**  
N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency																Date: February 2018															
Appropriation/Budget Activity 0400 / 4								R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment								Project (Number/Name) MD08 / Ground Based Midcourse															
Significant Event Complete ▲		Milestone Decision Complete ★		Element Test Complete ◆		System Level Test Complete ●		Complete Activity ◆																							
Significant Event Planned △		Milestone Decision Planned ☆		Element Test Planned ◇		System Level Test Planned ○		Planned Activity ◇																							
								FY 2017		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023											
CLE Re-architecture								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Communications Infrastructure								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Ground Based Interceptors Rotation and Upgrades								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Technology Refresh								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Deliver GBIs (48-50)								◇																							
On Demand Communications								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Deliver GBIs (51-53)									◇	◇	◇																				
Ground Systems 7A Mid Term (FQT)										◇																					
Deliver GBIs (54-58)											◇	◇	◇																		
Post-Intercept Assessment Start												◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇		
Ground Systems 7B Mid Term DIHD (FQT)														◇																	
Hawaii IFICS Data Terminal (IDT)																				◇	◇	◇	◇	◇	◇	◇	◇	◇	◇		
Ground Systems Software 8 Development (FQT)																						◇									
Ground Systems Software 9 Development (FQT)																								◇							

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Missile Defense Agency			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>	<b>Project (Number/Name)</b> MD08 / <i>Ground Based Midcourse</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
CLE Re-architecture	1	2017	4	2019
Communications Infrastructure	1	2017	4	2021
Ground Based Interceptors Rotation and Upgrades	1	2017	4	2023
Technology Refresh	1	2017	4	2022
Deliver GBIs (48-50)	1	2017	1	2017
On Demand Communications	1	2017	4	2020
Deliver GBIs (51-53)	2	2017	4	2017
Ground Systems 7A Mid Term (FQT)	3	2017	3	2017
Deliver GBIs (54-58)	4	2017	2	2018
Post-Intercept Assessment Start	1	2018	4	2022
Ground Systems 7B Mid Term DIHD (FQT)	4	2018	4	2018
Hawaii IFICS Data Terminal (IDT)	2	2021	4	2023
Ground Systems Software 8 Development (FQT)	4	2021	4	2021
Ground Systems Software 9 Development (FQT)	4	2022	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MC08 / Cyber Operations			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MC08: Cyber Operations	21.534	12.329	18.818	23.754	-	23.754	26.372	26.575	19.463	25.454	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**  
Increase from FY 2018 to FY 2019 is due to increased efforts to mitigate cybersecurity threats.

**A. Mission Description and Budget Item Justification**

The funding in this project sustains MDA Risk Management Framework and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Systems Security Manager (PM/ISSM) Plans of Action and Milestones (POA&Ms) for MDA GMD mission systems. It maintains the Assessment and Authorization (A&A) data repository, capturing the RMF documentation (artifacts, validation results, and Cybersecurity Risk Assessment results, and Authorization decisions) and POA&Ms on all MDA information systems.

This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of A&A documentation and authorization recommendations to the MDA Senior Information Systems Security Officer (SISSO)/ Security Control Assessor (SCA), and Authorizing Official (AO). Independent Verification and Validation (IV&V) team actions ensure the availability, integrity, authentication, confidentiality and non-repudiation of the MDA mission, test and administrative systems. Activities in the Project are necessary to comply with the Federal Information Systems Modernization Act (FISMA) 2014.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
<b>Title:</b> Network / System Certification and Accreditation (C&A)	4.329	4.763	5.115
<b>Articles:</b>	-	-	-
<b>Description:</b> Sustains the MDA Risk Management Framework (RMF) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information System Security Manager (PM/ISSM) Plans of Action and Milestones (POA&Ms) for MDA Ground-based Midcourse Defense (GMD) mission system. It maintains the Assessment and Authorization (A&A) data repository, capturing the RMF documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Authorization Official (AO) accreditation decisions) and POA&M on all MDA information systems. Provides GMD Information Security Systems Manager (ISSM) civilian salaries. Conducts cybersecurity/ Information Assurance (IA) engineering and architecture planning for GMD information technology systems. Plans and tests cybersecurity controls for BMDS GMD systems. Conducts Controls Validation Testing (CVT) of GMD mission systems and provide Plan of Action and Milestones to mitigate cybersecurity deficiencies. Conducts annual cybersecurity reviews on the GMD enclaves to assess compliance in implementing and maintaining cybersecurity controls. Develops GMD DoD Risk Management Framework (RMF) Assessment and Authorization packages.			

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment	Project (Number/Name) MC08 / Cyber Operations		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019
Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2018 Plans:</b> - SEE ABOVE.  <b>FY 2019 Plans:</b> - SEE ABOVE.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> -Increase from FY 2018 to FY 2019 reflects an increase in priority of efforts to mitigate cyber security threats.				
<b>Title:</b> Cybersecurity		8.000	14.055	18.639
<b>Articles:</b>		-	-	-
<b>Description:</b> Implements the GMD Cybersecurity Program and Defense in Depth Cybersecurity Strategy for the GMD Weapon System's Research, Development, Test, and Operational Mission Environment Systems, Networks, and Enclaves to ensure confidentiality, integrity, and availability of the System to the Warfighter.				
Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2018 Plans:</b> -Increase from FY 2018 to FY 2019 is due to increased efforts to mitigate cyber security threats.  -Continue assessing, implementing, documenting, and validating up to 512 cybersecurity control families (1935 security protections and control enhancements) for 25 representative systems which are comprised of 250,000 computing and logic bearing components supporting the GMD Development, Test, Training, and Operational missions. This will result in improved Confidentiality, Integrity, and Availability of the GMD System while ensuring mandatory compliance with Risk Management Framework -Continue implementing necessary upgrades to enhance the cybersecurity posture of the GMD operational environments and it's supporting information systems and networks while remaining responsive to active or emerging cyber threats against GMD -Continue ensuring compliance with security mandates to maintain continued authorization to operate while eliminating or reducing risks assessed against the program by implementing vulnerability mitigation activities -Continue protecting the GMD systems through the incorporation of a Defense-in-depth cybersecurity strategy which requires a fully qualified cybersecurity workforce to include training and certification of nearly 450 Cybersecurity Workforce personnel involved in developing, operating, and maintaining GMD test, training, and mission support information systems and networks and				

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency							Date: February 2018				
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment			Project (Number/Name) MC08 / Cyber Operations				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2017	FY 2018	FY 2019		
enclaves at various GMD locations such as: Vandenberg Air Force Base, CA; Fort Greely, AK; Fort Drum, NY; and the Missile Defense Integration Operations Center in Colorado Springs, CO											
FY 2019 Plans: -Continue assessing, implementing, documenting, and validating up to 512 cybersecurity control families (1935 security protections and control enhancements) for 25 representative systems which are comprised of 250,000 computing and logic bearing components supporting the GMD Development, Test, Training, and Operational missions. This will result in improved confidentiality, integrity, and availability of the GMD System while ensuring mandatory compliance with Risk Management Framework -Continue implementing necessary upgrades to enhance the cybersecurity posture of the GMD operational environments and its supporting information systems and networks while remaining responsive to active or emerging cyber threats against GMD -Continue ensuring compliance with security mandates to maintain continued authorization to operate while eliminating or reducing risks assessed against the program by implementing vulnerability mitigation activities -Continue protecting the GMD systems through the incorporation of a Defense-in-depth cybersecurity strategy which requires a fully qualified cybersecurity workforce to include training and certification of nearly 450 Cybersecurity Workforce personnel involved in developing, operating, and maintaining GMD test, training, and mission support information systems and networks and enclaves at various GMD locations such as: Vandenberg Air Force Base, CA; Fort Greely, AK; Fort Drum, NY; and the Missile Defense Integration Operations Center in Colorado Springs, CO											
FY 2018 to FY 2019 Increase/Decrease Statement: Increase from FY 2018 to FY 2019 reflects increased efforts to mitigate cybersecurity threats.											
Accomplishments/Planned Programs Subtotals							12.329	18.818	23.754		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0203882C: MD08: GMD O&M	129.281	137.896	143.027	-	143.027	139.319	142.269	145.188	0.000	Continuing	Continuing
• 0604874C: Improved Homeland Defense (HLD) Interceptors	247.362	636.430	561.220	-	561.220	485.755	502.023	604.309	635.719	Continuing	Continuing
• 0604887C: Ballistic Missile Defense Midcourse Defense Segment Test	61.350	76.757	81.934	-	81.934	95.458	82.956	78.715	85.362	Continuing	Continuing
Remarks											



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense</i> <i>Midcourse Defense Segment</i>	<b>Project (Number/Name)</b> MC08 / <i>Cyber Operations</i>
<p><b><u>D. Acquisition Strategy</u></b></p> <p>GMD uses the cybersecurity funding to apply security engineering principles to acquire, design, test, implement and field technical solutions throughout the systems architecture to ensure sufficient protections exist from a threat and risk based approach. To achieve this, cybersecurity protection requirements must be validated and properly flowed into system requirements and design specifications early enough to provide the most cost benefit. Many BMDS systems are now or within the very near future undergoing tech-refresh and so the opportunity to receive the most benefit of implementing the more stringent protections is at hand and aligns with the proposed budget as submitted.</p> <p><b><u>E. Performance Metrics</u></b></p> <p>N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MC08 / Cyber Operations					
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - Civilian Salaries	MIPR	MDA : AL/VA	2.328	0.460	Oct 2016	1.026	Oct 2017	1.071	Oct 2018	-		1.071	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services	C/CPFF	Booz Allen Hamilton, AI : Torch Technologies, AI	10.209	3.869	Nov 2016	3.737	Nov 2017	4.044	Oct 2018	-		4.044	Continuing	Continuing	Continuing
Cybersecurity - Cybersecurity	MIPR	SMDC : Redstone Arsenal, AL	5.653	4.950		8.000	Nov 2017	11.260	Nov 2018	-		11.260	Continuing	Continuing	Continuing
Cybersecurity - GMD Cybersecurity Program	C/CPIF	Boeing : AL	0.469	0.482		0.924	Nov 2017	1.984	Nov 2018	-		1.984	Continuing	Continuing	Continuing
Cybersecurity - Ground Systems Software Cybersecurity	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	2.875	2.568		5.131	Nov 2017	5.395	Nov 2018	-		5.395	Continuing	Continuing	Continuing
Subtotal			21.534	12.329		18.818		23.754		-		23.754	Continuing	Continuing	N/A
Remarks N/A															
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			21.534	12.329		18.818		23.754		-		23.754	Continuing	Continuing	N/A
Remarks N/A															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency																	Date: February 2018																				
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment										Project (Number/Name) MC08 / Cyber Operations																	
Significant Event Complete ▲ Significant Event Planned △					Milestone Decision Complete ★ Milestone Decision Planned ☆					Element Test Complete ◆ Element Test Planned ◇					System Level Test Complete ● System Level Test Planned ○					Complete Activity ◆ Planned Activity ◇																	
										FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
GMD Cybersecurity Mitigation Monitoring and Tracking										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇		
GMD Cybersecurity Program Policy / Risk Management										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/Submission										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			
GMD Transition to Cybersecurity Risk Management Framework (CRMF)										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇			
BMDS Cybersecurity Policy Development										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇		

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Missile Defense Agency			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>	<b>Project (Number/Name)</b> MC08 / <i>Cyber Operations</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GMD Cybersecurity Mitigation Monitoring and Tracking	1	2017	4	2023
GMD Cybersecurity Program Policy / Risk Management	1	2017	4	2023
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/ Submission	1	2017	4	2023
GMD Transition to Cybersecurity Risk Management Framework (CRMF)	1	2017	4	2023
BMDs Cybersecurity Policy Development	1	2017	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MD40 / Program-Wide Support			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD40: Program-Wide Support	235.412	41.095	31.587	29.710	-	29.710	29.688	27.430	26.734	28.170	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note Program Wide Support reflects proportional changes as a result of budget changes in Ballistic Missile Defense Midcourse Defense Segment program element. Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests on the R-3.												
A. Mission Description and Budget Item Justification PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs includes: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2017	FY 2018	FY 2019	
Title: Program Wide Support  Articles:  Description: N/A  FY 2018 Plans: N/A  FY 2019 Plans: N/A  FY 2018 to FY 2019 Increase/Decrease Statement: N/A									41.095	31.587	29.710	
									-	-	-	
Accomplishments/Planned Programs Subtotals									41.095	31.587	29.710	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense</i> <i>Midcourse Defense Segment</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> N/A		
<b>E. Performance Metrics</b> N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603882C / Ballistic Missile Defense Midcourse Defense Segment				Project (Number/Name) MD40 / Program-Wide Support					
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	14.188	0.749	Jul 2017	0.632	Jul 2018	0.427	Jul 2019	-		0.427	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : Multi: AK, AL, CA, CO, VA	163.639	30.056	Oct 2016	30.348	Oct 2017	26.223	Oct 2018	-		26.223	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (FFP)	C/FFP	PHACIL, INC : Multi: AK, AL, CA, CO, VA	12.430	10.290	Jul 2017	0.607	Jul 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPR)	MIPR	Various : Multi: AK, AL, CO, CA, HI, VA	26.298	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AK, AL,CA, CO, HI, VA	13.625	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Sustainment Transportation	Reqn	Various : AK, AL, CA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPFF	Utah St Univ; JHU/ APL LLC : Multi: MD, UT	1.372	0.000		0.000		0.000		-		0.000	3.500	4.872	0.000
Program Wide Support - Facilities and Maintenance	MIPR	Various : Multi: AK, AL, CA, VA	3.860	0.000		0.000		3.060	May 2019	-		3.060	Continuing	Continuing	Continuing
Subtotal			235.412	41.095		31.587		29.710		-		29.710	Continuing	Continuing	N/A
Remarks Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile															

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Missile Defense Agency										<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense Midcourse Defense Segment</i>					<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>			
	<b>Prior Years</b>	<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	235.412	41.095		31.587		29.710		-		29.710	Continuing	Continuing	N/A
<b>Remarks</b> N/A													



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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency															Date: February 2018																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Missile Defense Agency			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603882C / <i>Ballistic Missile Defense</i> <i>Midcourse Defense Segment</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2017	4	2023